

WHAT IS CLAIMED:

1. A method for preparing an ester from a compound having a structure that comprises a conjugated diene, the method comprising:

providing a solution containing at least one alkanoic acid of the formula R_1CO_2H wherein R_1 is a C₁ to C₇ alkyl group and having a K_a relative to water of less than 10^{-4} ;

heating the solution to a temperature in excess of 100°C;

adding the compound having the structure that comprises a conjugated diene to the solution to form a reaction mixture while maintaining said alkanoic acid in a molar concentration greater than that of the compound to produce an ester derivative of the compound.

2. The method of claim 1 wherein the alkanoic acid is acetic acid, the compound is myrcene or isoprene and the esters are geranyl acetate/neryl acetate mixture or prenyl acetate respectively.

3. The method of claim 1 wherein the compound is added to the solution prior to, during, or after the heating of the solution.

4. The method of claim 2 wherein isoprene or myrcene is added to the liquid reaction mixture in a dropwise fashion.

5. The method of claim 1 wherein the solution comprises a mixture of alkanoic acids.

6. The method of claim 1 wherein the liquid solution further comprises a base having a formula $(R_2CO_2)M$ wherein R_2 is C-1 to C-7 alkyl, M is a group I cation and R_2 can be the same or different than R_1 .

7. The method of claim 6 wherein the base is selected from the group consisting of sodium acetate, potassium acetate and sodium propionate.

8. The method of claim 1 wherein R_1CO_2H is acetic acid, the compound is isoprene, and the reaction is conducted in a pressurized vessel.

9. The method of claim 1 wherein R_1CO_2H is selected from the group consisting of acetic acid, propionic acid, butyric acid, isobutyric acid, isovaleric acid and mixtures thereof and the compound is myrcene.

10. The method of claim 1 wherein the reaction mixture is maintained in a pressurized vessel at a temperature ranging from about 115°C to about 175°C during and after the adding of the compound.

11. The method of claim 1 wherein said liquid solution further comprises a non-basic organic co-solvent.

12. The method of claim 11 wherein the co-solvent is selected from the group consisting of methylbenzene, butyl ether, chlorobenzene, 1,4-dimethylbenzene, methoxybenzene, cyclohexanone, butyl acetate and mixtures thereof.

13. The method of claim 12 wherein the alkanoic acid is acetic acid and the compound is myrcene.

14. The method of claim 1 wherein said liquid solution comprises a mixture of carboxylic acids including acetic acid and the compound is myrcene.

15. The method of claim 14 wherein the liquid solution further comprises a carboxylic acid selected from the group consisting of butyric acid, isobutyric acid and mixtures thereof.

16. The method of claim 15 wherein the liquid solution further comprises a non-basic organic co-solvent.

17. The method of claim 16 wherein the co-solvent is selected from the group consisting of methoxybenzene, chlorobenzene, methylbenzene, butyl acetate, 1,4-dimethylbenzene, butyl ether and mixtures thereof.

18. The method of claim 15 wherein the reaction mixture is maintained in a pressurized vessel at a temperature in excess of 100°C.

19. The method of claim 8 wherein said reaction mixture also contains a non-basic organic co-solvent.

20. The method of claim 19 wherein the co-solvent is selected from the group consisting of isopropyl acetate, 2-butanone, toluene and mixtures thereof.

21. A method for preparing geranyl and neryl esters from myrcene comprising:

providing a solution containing at least one alkanoic acid of the formula R_1CO_2H wherein R_1 is a C₁ to C₇ alkyl group and having a K_a of less than 10^{-4} ;

heating the solution;

adding myrcene to the solution to form a reaction mixture while maintaining the alkanoic acid in a molar concentration greater than that of the myrcene to produce a geranyl ester/neryl ester mixture.

22. The method of claim 21 wherein the myrcene is added to the solution prior to, during or after the heating of the solution.

23. The method of claim 21 wherein myrcene is added to the solution in a dropwise fashion.

24. The method of claim 21 wherein the solution comprises a mixture of alkanoic acids.

25. The method of claim 21 wherein the liquid solution further comprises a base having a formula $(R_2CO_2)M$ wherein R_2 is C-1 to C-7 alkyl, M is a group I cation and R_2 can be the same or different than R_1 .

26. The method of claim 25 wherein the base is selected from the group consisting of sodium acetate, potassium acetate or sodium propionate.

27. The method of claim 21 wherein R_1CO_2H is acetic acid.

28. The method of claim 21 wherein R_1CO_2H is selected from the group consisting of acetic acid, propionic acid, butyric acid, isobutyric acid, isovaleric acid and mixtures thereof.

29. The method of claim 21 wherein the reaction mixture is maintained in a pressurized vessel at a temperature in excess of 100°C before, during or after the adding of the myrcene.

30. The method of claim 21 wherein said liquid solution further comprises a non-basic organic co-solvent.

31. The method of claim 30 wherein the co-solvent is selected from the group consisting of methylbenzene, butyl ether, chlorobenzene, 1,4-dimethylbenzene, methoxybenzene, cyclohexanone, butyl acetate and mixtures thereof.

32. The method of claim 21 wherein said the at least one alkanoic acid is acetic acid.

33. The method of claim 32 wherein the liquid solution further comprises a carboxylic acid selected from the group consisting of butyric acid, isobutyric acid and mixtures thereof.

34. The method of claim 32 wherein the liquid solution further comprises a non-basic organic co-solvent.

35. The method of claim 34 wherein the co-solvent is selected from the group consisting of methoxybenzene, chlorobenzene, methylbenzene, butyl acetate, 1,4-dimethylbenzene, butyl ether and mixtures thereof.

36. The method of claim 32 wherein the reaction mixture is maintained in a pressurized vessel at a temperature in excess of 100°C.

37. A method for preparing a prenyl ester from isoprene comprising:

providing a solution containing at least one alkanoic acid of the formula R_1CO_2H wherein R_1 is a C_1 to C_7 alkyl group and having a K_a of less than 10^{-4} ;

heating the solution;

adding the isoprene to the solution before, during or after the heating to form a reaction mixture within a pressurized vessel while maintaining said alkanoic

acid in a molar concentration greater than that of the isoprene to produce a prenyl ester.

38. The method of claim 37 wherein the isoprene is added to the reaction mixture in a dropwise fashion.

39. The method of claim 37 wherein the solution comprises a mixture of alkanoic acids.

40. The method of claim 37 wherein R_1CO_2H is acetic acid.

41. The method of claim 37 wherein said liquid solution further comprises a non-basic organic co-solvent.

42. The method of claim 41 wherein the co-solvent is selected from the group consisting of methylbenzene, ethyl acetate, isopropyl acetate, 2-butanone, and mixtures thereof.

43. The method of claim 37 wherein the liquid solution further comprises a base having a formula $(R_2CO_2)M$ wherein R_2 is C-1 to C-7 alkyl, M is a group I cation and R_2 can be the same or different than R_1 .

44. The method of claim 43 wherein the base is selected from the group consisting of sodium acetate, potassium acetate and sodium propionate.